

representing all numbers within a first sub-range of the given range as entries within the optimized set; and

representing and optimizing each of a plurality of sub-ranges, other than the first sub-range, of the given range as a plurality of entries using wildcards within the optimized set.

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cont

36. (New) A computer system as recited in claim 35 that is in the form of a router.

37. (New) A computer readable medium containing programming instructions for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a plurality of sub-ranges, the computer readable medium comprising:

computer code for representing all numbers within a first sub-range of the given range as entries within the optimized set; and

computer code for representing and optimizing each of a plurality of sub-ranges, other than the first sub-range, of the given range as a plurality of entries using wildcards within the optimized set.

REMARKS

Applicant thanks the Examiner for his courtesy during the telephonic interview of 30 October 2002 with Applicant's representative Mary Olynick. During this conversation, it was agreed that if claim 4 were amended to be in a form similar to claim 1, claim 4 would then be similarly deemed to be directed towards statutory subject matter. Accordingly, Claims 4, 23, 29, and 32 have been amended. New claims 34-37 have been added, and claims 1-3, 18-22, 28, 30, and 31 have been cancelled. Accordingly, claims 4-17, 23-27, 29, and 32-37 remain pending.

The Examiner rejected claims 4-17, 23-27, 29 and 32-33 under 35 U.S.C. 101 as not being directed towards statutory subject matter. As discussed during the telephone conversation, since the amended claims 4-17, 23-27, 29 and 32-33 have a practical application of saving memory which is accomplished by mechanisms for representing a set of numbers with a wildcard (similarly to cancelled, but statutory subject matter, claim 1), it is submitted that the claims 4-17, 23-27, 29 and 32-33 are directed towards statutory subject

matter. Thus, it is respectfully submitted that claims 4-17, 23-27, 29 and 32-33 are allowable.

The Examiner has rejected claims 1, 3, 18, 21-22, 28 and 30 under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent No. 6,151,631 by Ansell et al. (herein "Ansell"). Additionally, claims 2, 19-20 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ansell in view of U.S. Patent No. 6,195,658 by Comito et al. (herein "Comito"). However, these claims are cancelled to expedite prosecution.

New independent claim 34 is generally directed towards "[a] method for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a plurality of sub-ranges." Claim 34 also requires "representing all numbers within a first sub-range of the given range as entries within the optimized set" and "representing and optimizing each of a plurality of sub-ranges, other than the first sub-range, of the given range as a plurality of entries using wildcards within the optimized set." In other words, all the numbers within a first sub-range are represented as entries, while the numbers within the other plurality of sub-ranges are represented and optimized as entries with wildcards. Independent claims 35 and 37 have similar limitations.

Ansell teaches conventional wildcard representations of an entire range of numbers. For example, numbers 127.56.212.0 through 127.56.214.255 are represented by three wildcards: 127.56.212.*, 127.56.213.*, and 127.56.214.*. Although Ansell teaches representing a single sub-range of number with wildcards, Ansell fails to teach or suggest representing and optimizing a plurality of sub-ranges as entries with wildcards, in the manner claimed. The secondary reference Comito also fails to teach or to suggest such limitation.

Thus, it is respectfully submitted that new claims 34, 35 and 37 are patentable over the cited references.

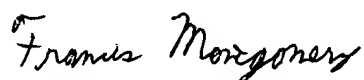
Claim 36 depends directly from independent claim 35 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claim 35.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. If after reviewing this

amendment, this case is not considered to be in condition for allowance for any reason, the Examiner is respectfully requested to contact the undersigned at the number set forth below.

No fee is believed due in conjunction with this amendment. However, if it is determined that a fee is due, the Commissioner is authorized to charge any fees to Deposit Account No. 19-2179.

Respectfully submitted,

A handwritten signature in cursive script that reads "Francis Montgomery".

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APPENDIX: Marked Version of Claims

The claims have been amended as follows. All pending claims are shown, including non-amended claims.

1-3. CANCELLED

4. (Amended Once) A method for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range, the method comprising:

[dividing the given range into a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range;]

representing [including] all numbers within the first sub-range as entries within the optimized set; and

representing and optimizing the second, third, and fourth sub-ranges [into] as a plurality of entries using wildcards[, the entries being included] within the optimized set.

5. A method as recited in claim 4 wherein the first sub-range includes a first portion of the given range that cannot be represented with wildcards.

6. A method as recited in claim 5 wherein the first sub-range includes the beginning number of the given range to, but not including, a first number of the given range that is divisible by 10.

7. A method as recited in claim 6 wherein the first sub-range is empty when the beginning number of the given range is divisible by 10.

8. A method as recited in claim 5 wherein the second sub-range includes the first number of the given range that is divisible by 10 to, but not including, a number of the given range that is representable with an integer times a highest power of ten.

9. A method as recited in claim 8 wherein the second sub-range is empty when the beginning number is the number of the given range that is representable with an integer times the highest power of ten.

10. A method as recited in claim 8 wherein the third sub-range includes the number of the given range that is representable with an integer times the highest power of ten to, but not including, a last number of the given range that is divisible by ten.

11. A method as recited in claim 10 wherein the third sub-range is empty when the beginning number is the last number of the given range that is divisible by ten.

12. A method as recited in claim 10 wherein the fourth sub-range of numbers includes the last number of the given range that is divisible by ten to the ending number of the given range.

13. A method as recited in claim 12 wherein optimization of the second sub-range is accomplished by:

dropping one or more zeros off the beginning number to form a counting value, wherein the number of dropped zeros equals a magnitude value;

determining place where beginning and ending numbers first differ going from left- to right-most digits;

truncating the ending number after the first differing digit to form a limiting value;

incrementing the counting value and then adding a wildcard entry equal to the incremented counting value with addition of a number of wildcards equal to the magnitude value to the optimized set until the counting value equals the limiting value; and

when the counting value is divisible by 10, dropping one or more zeros off the counting value and incrementing the magnitude value by the number of dropped zeros.

14. A method as recited in claim 13 wherein optimization of the second sub-range is performed prior to the optimization of the third sub-range, the optimization of the third sub-range being accomplished by:

dropping a number of zeros equal to the magnitude value off the beginning number to form a new counting value;

truncating the ending number by a number of digits equal to the magnitude to form a new limiting value;

adding a wildcard entry equal to the incremented counting value with addition of a number of wildcards equal to the magnitude value to the optimized set and then incrementing the counting value until the new counting value equals the new limiting value; and

when the new counting value equals the new limiting value and the magnitude value is not equal to 1, decrementing the magnitude value and appending a zero to the new counting value.

15. A method as recited in claim 14 wherein optimization of the third sub-range is accomplished by:

adding a wild card entry equal to the beginning number truncated by a one's place digit with addition of a single wildcard character when the one's place of the beginning number equals 0 and a one's place of the ending number equals 9; and

adding all numbers within the fourth sub-range to the optimized set when the one's place of the beginning number does not equal 0 or the one's place of the ending number does not equal 9.

16. A method as recited in claim 4, wherein each number within the given range represents a phone number.

17. A method as recited in claim 4, wherein each number within the given range represents a router address.

18.-22. CANCELLED.

23. (Amended Once) A router for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range, the router comprising:

a memory; and

a processor coupled to the memory,

wherein at least one of the memory and the processor are adapted to provide:

[dividing the given range into a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the

second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range;]

representing [including] the numbers within the first sub-range as entries within the optimized set; and

representing and optimizing the second, third, and fourth sub-ranges [into] as a plurality of entries using wildcards[, the entries being included] within the optimized set.

24. A router as recited in claim 23, wherein each number within the given range represents a phone number that are associated with a same information.

25. A router as recited in claim 24, wherein the same information is a customer identification.

26. A router as recited in claim 23, wherein each number within the given range represents a router address that are associated with a same information.

27. A router as recited in claim 26, wherein the same information is a destination address.

28. CANCELLED.

29. (Amended Once) A computer readable medium containing programming instructions for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range, the computer readable medium comprising:

[computer code for dividing the given range into a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range;]

computer code for representing [including] the numbers within the first sub-range as entries within the optimized set; and

computer code for representing and optimizing the second, third, and fourth sub-ranges [into] as a plurality of entries using wildcards[, the entries being included] within the optimized set.

30-31. CANCELLED.

32. (Amended Once) A computer system for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range, the computer system comprising:

a memory; and

a processor coupled to the memory,

wherein at least one of the memory and the processor are adapted to provide:

[dividing the given range into a first sub-range, a second sub-range, a third sub-range, and a fourth sub-range, the first sub-range having lower numbers than the second sub-range, which has lower numbers than the third sub-range, which has lower numbers than the fourth sub-range;]

representing [including] the numbers within the first sub-range as entries within the optimized set; and

representing and optimizing the second, third, and fourth sub-ranges [into] as a plurality of entries using wildcards[, the entries being included] within the optimized set.

33. A computer system as recited in claim 32, wherein the numbers within the given range are telephone numbers.

34. (New) A method for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a plurality of sub-ranges, the method comprising:

representing all numbers within a first sub-range of the given range as entries within the optimized set; and

representing and optimizing each of a plurality of sub-ranges, other than the first sub-range, of the given range as a plurality of entries using wildcards within the optimized set.

35. (New) A computer system for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a plurality of sub-ranges, the computer system comprising:

a memory; and

a processor coupled to the memory,

wherein at least one of the memory and the processor are adapted to provide:

representing all numbers within a first sub-range of the given range as entries within the optimized set; and

representing and optimizing each of a plurality of sub-ranges, other than the first sub-range, of the given range as a plurality of entries using wildcards within the optimized set.

36. (New) A computer system as recited in claim 35 that is in the form of a router.

37. (New) A computer readable medium containing programming instructions for representing a given range of numbers with an optimized set of entries utilizing wildcards, the given range having a beginning number and an ending number, wherein the given range includes a plurality of sub-ranges, the computer readable medium comprising:

computer code for representing all numbers within a first sub-range of the given range as entries within the optimized set; and

computer code for representing and optimizing each of a plurality of sub-ranges, other than the first sub-range, of the given range as a plurality of entries using wildcards within the optimized set.